7.1 MEDIAN LANDSCAPING

7.1.1 Purpose

A. This section describes the City's Median Design Standards. It is intended to acquaint designers and developers with these standards; as well to assist them in processing plans through the plan review process in an efficient and timely manner.

7.1.2 Median Character

A. There are four character areas with differing median design standards for each area. These are general designations. Contact the City of Goodyear's Community Development office at 932-3494 to determine which character area designation to use for each specific project.

B. Medians within Commercial Cores as identified in the General Plan will be allowed a higher percentage of plant coverage with the plant materials for the character area in which they are located.

1. Downtown and Urban Character

   a. Balance the use of plant material with decorative paving (stamped concrete, exposed aggregate, pavers, etc.), to minimize the exposure of decomposed granite.

2. Suburban Character

   a. Use decomposed granite, exposed aggregate, and grouted riprap in place of decorative paving.

   b. Plant palette should begin to incorporate more arid-type materials.

3. Transitional Arid Character

   a. Handset riprap and decomposed granite are to be the primary inorganic materials.

   b. Plant palette shall consist of indigenous and desert-compatible materials.

4. Natural Character

a. Native stone and indigenous decomposed granite are to be the primary inorganic materials

b. Plant palette is to consist of indigenous material only, and shall conform to the native distribution patterns, densities, and maturity.

7.1.3 Landscape Guidelines

A. Maintenance Responsibility

1. Maintenance of landscape medians will be the responsibility of the developer, property owner, or a homeowners association for a given period of time (usually 2 years). This period of responsibility will begin and end following inspections and acceptance of installation by a representative of the City. It is the developer's responsibility to set up the inspections by calling the Public Works Department at 932-1637.

2. The particulars for maintenance responsibility of medians are to be stated on the final landscape plans submittal, the final plat, and/or in a separate agreement with the City.

B. Median Widths

1. More detailed information is contained in the City of Goodyear Design Standards and Policies Manual, Section 4.1 Geometrics.

2. Median width is measured from back of median curb to back of median curb. The minimum width for a median is 3 feet. If the median is landscaped, a 4 foot minimum is generally required.

C. Ends of a Median

1. The first ten (10) feet and the last ten (10) feet of a median are to be decorative concrete (stamped concrete, exposed aggregate, etc. - be creative).

D. Placement of Trees and Shrubs

1. For planting details of trees, shrubs, and groundcovers.

2. Trees shall be located a minimum of five (5) feet from the back of median curb. Mature canopy size shall also be considered and may require a greater setback.

E. Tree Quantities and Sizes

1. Trees shall be provided at the rate of one tree per each twenty-five (25) lineal feet of median length. The minimum size is 15 gallon with fifty (50) percent to be provided as mature trees or larger.

F. Grading

1. Mounding should not be used in the area designated as Downtown or as Urban Character.

2. The maximum slope of any mounding shall be 4:1 (25%).

3. The finished grade shall be smooth, uniform, and a minimum of four (4) inches below the top of curb.

G. Decomposed Granite

1. Size is to be Madison Gold three-fourths (3/4) inch minus.

2. A sample shall be submitted to the City's Public Works Department for approval prior to the contractor ordering and bringing onto the site.

3. Color to match what exists in the area. If none exists in the area contact a representative of the City's Community Development Department at 932-3494 to determine an acceptable color.

H. Boulders

1. One-third of any boulder is to be set in ground.

2. Maximum vertical exposure is eighteen (18) inches above grade.

I. Plant Selection

1. All plant materials used in a median are required to come from the Arizona Department of Water Resources low water use plant list for the Phoenix Active Management Area. The selected plant materials are also to be consistent with the appropriate character areas described in Section 7.1.2 of this manual.

7.1.4 Irrigation Guidelines

A. Workmanship and Materials

1. All materials and workmanship shall conform to the requirements and recommendations of the Irrigation Association Standards. All material specifications shall be based on ASTM standards. All work standards shall be in compliance with ANSI.

B. Approved Irrigation System Types

1. Drip system using rigid lateral.

2. Bubbler system using pressure-compensating bubblers. (Use only with written approval from the City of Goodyear Public Works Department).

C. Controllers

1. Ambient light or Rainbird RCM-B (or approved equivalent) controllers are to be used. Contact a representative of the City's Public Works Department at 932-1637 for any substitution.

2. A security cabinet is to be provided for each controller.

3. Controllers are to be grounded. Show details on final irrigation plans.

4. Controllers are to be placed in the center of the median a minimum of twenty (20) feet before the beginning of the turn bay.

D. Power Source

1. Contractor is responsible for initiating account and service connection.

2. Power source is to be located within the median or the right-of-way, or a utility easement must be provided. This location is to be indicated and noted on the final irrigation plans.

3. A power cut-off switch is to be provided to each controller.

4. All wiring (110 and 24 volt) is to be sleeved under pavement, sidewalks, etc.

E. Water Source

1. Water source and location of proposed tap is to be shown on final irrigation plans.

2. Contact COG Water and Wastewater at 932-1637 for information on tapping into City waterlines.

3. The minimum source pressure required to operate the system shall be noted on plans.

F. Remote Control Electric Valves

1. Valves are to be of brass construction minimum size one (1) inch.

2. Approved valve is Rainbird series G.

3. Ball valves shall be installed in front of all control valves.

4. All direct buried control valve wiring shall be a minimum 14 gauge.

G. Back Flow Prevention Devices

1. Only reduced pressure assemblies will be used.

2. Acceptable back flow prevention devices are Febco 825-Y or Watts 909 assemblies with ball valve shut off.

3. All back flow prevention devices shall have a security enclosure.

4. Union to be installed on back flow assembly.

5. Brass wire strainer shall be installed on back flow assembly.

6. Back flow prevention devices must be tested by a certified tester before the City accepts responsibility for maintenance of the system. Contact 932-1637 for a list of approved certified testers.

H. Approved Ball Valves

1. Ball valves shall be manufactured by Febco or Watts. Approved equivalents may be substituted. Contact a representative of the City's Public Works Department at 932-1637 for substitute approval.

I. Approved Emitters

1. Bow Smith "SL" and "ML 200" series or approved equivalent (for trees only).

J. Approved Bubblers

1. Rainbird pressure compensating bubblers or approved equivalent.

K. Approved Pressure Regulators

1. Senninger preset pressure regulators or approved equivalent.

L. Pipe

1. All pipe shall be minimum Class 200 PVC.

2. All main lines, sleeves, and fittings shall be minimum Schedule 40 PVC.

3. Copper, or brass shall be used between water meter and backflow prevention device.

4. All risers shall be flexible vinyl PVC pipe.

5. Compression couplings shall not be allowed on main lines.

M. General Irrigation Design Criteria

1. Main lines are to have a minimum backfill cover of eighteen (18) inches.

2. Lateral lines are to have a minimum backfill cover of twelve (12) inches.

3. Schedule 40 sleeving under roadways are to have a minimum horizontal separation of four (4) inches and a minimum backfill cover of twenty-four (24) inches.

4. Piping located in the same trench are to have a minimum horizontal separation of four (4) inches.

5. The irrigation system is to be located entirely within the median.

6. Valve boxes are to have a six (6) inch minimum pea gravel sump.

7. All solvent welded PVC pipe and joints are to be primed with pipe primer. The type of glue and primer shall be per the pipe manufacturer's recommendations or directions.

8. Back fill material is to be free of rocks, boulders, and any other extraneous matter and debris.

9. Contractor is responsible for initiating account and having water meter set.

10. Trees and shrubs shall be valved separately.

11. The entire irrigation system must be independent of other user, i.e. landscape dedicated to the City of Goodyear for maintenance is to have separate power and water meters from other irrigation systems.

12. All back fill material for trenches shall be free of rock and debris.

13. Plans shall indicate existing and design operating water pressure requirements.

14. Final submittal for irrigation plans shall show details for controller valves, pressure regulator, backflow prevention device, valve boxes, enclosures, flush caps, trenching, backfill, security cabinet, emitters, and/or bubblers.

7.1.5 Sight Distance

A. Sight Distances and Safety Triangle

1. To determine sight distances, use the criteria set forth in Section 4.1, Geometrics.

2. The sight line safety triangle shall be clearly indicated and delineated on the final landscape plan submittal.

B. Planting within the sightline safety triangle

1. Shrubs planted within the safety triangle are to have a mature height of not more than three (3) feet. Height shall be from edge of pavement, and total height shall include the height of any mounding.

2. Trees planted within the safety triangle are to have a clear trunk pruned to a height of seven (7) feet or greater upon installation. Height shall be from edge of pavement, and total height shall include the height of any mounding.

7.1.6 Alterations and As-Builts

A. If field conditions require relocation of water meter, backflow prevention device, controller, valve, or any other major component of the irrigation system as shown on approved plans contact a representative of the City's Public Works Department at 932-1637 prior to any installation. The City will respond within 24 hours.

B. Contractor is to provide an accurate set of as-built mylar drawings to the Landscape Inspector prior to initial acceptance of a system.

7.1.7 Non Conformance

A. Designs which do not conform to the criteria set forth in this publication may be appealed in writing to the Community Development Department. The approval, with or without conditions, or denial by the Development Policy Committee of an application shall be final unless within twenty (20) days from the date of the board's decision the applicant shall appeal therefrom in writing to the City Council. Such appeal shall be submitted through the City Clerk and shall indicate where, in the opinion of the appellant, the Board was in error. The City Clerk shall schedule the appeal for a City Council agenda, and the City Council at its meeting, shall uphold, modify, or overrule the decision of the Board. The decision of the City Council shall be final.

7.1.8 List of Recommended Plants
See City of Goodyear MAG Supplemental Details G-3600-1 through G-3600-3 for City approved plants and minimum tree sizes.

7.3 NON-PAVED TRAILS

7.3.1 Definitions

A. Trail

A trail can be defined in many ways, by many different people. For the purposes of this document, a trail shall be defined as a route or path which has been prepared or designated for recreational functions. This manual presents guidelines applicable to foot, horse and bicycle trail usage that can occur on an unpaved trail surface. Trails are not simply avenues to get from one place to another; they offer user opportunities to participate in numerous recreational activities. Providing quality recreational opportunities while protecting the resource is a major trail management concern and challenge. The information in this manual should be used as a guideline. Each trail needs its own plan of operation.

B. Urban Trail

Urban trails are those which occur in areas of urban or suburban densities, or where improvement of the trail surface is necessitated by the nature of the development within which it occurs.

C. Rural Trail

Rural trails are those which occur in natural washes or other natural areas, and require little improvement of the trail surface.

D. History of Use Corridor

These trails are those which have been established by historical use, however are not currently protected by right-of-way or some like method to preserve the use.

E. Supplemental Trails/Urban Easements

Additional trails which provide access to the main trail network. These may also include existing equestrian easements. These are normally provided and maintained by the adjoining landowners.

7.3.2 Location Standards

A. Urban Trails

These trails are being developed in response to one or two emerging trends. One of these trends is the increased leisure time and interest in fitness-oriented activities among urban groups. The other trend comes from the increasing concerns about the quality of the environment due to the explosive urban growth our cities are facing. Urban trails provide readily available recreation and aesthetic amenities by enhancing natural or man-made open spaces. These trails also can provide for possible routes for non-

motorized circulation throughout the urban network giving a more pleasurable alternative to those who desire it. These trails should be located along streets with low volume speed traffic and minimal frontage; along other streets which have wide clear setbacks; or along open-space corridors.

B. Supplemental Trails
Additional trails shall be required in areas where development would block access to the main trail system.

C. Underpasses/Overpasses
Grade separated crossings shall be provided for crossing major streets where the crossing does not occur at a signalized intersection and there is no safe alternative.

D. Bridges
These should be used to cross major barriers such as the Roosevelt Irrigation Canal. Site design and landscaping shall provide for the maximum possible retention of native plant materials on the site.

7.3.3 Trail Nodes

A. Hiking Support Site
Facilities include year-round shade and water. Vehicular parking not to exceed four spaces is optional.

B. Equestrian Support Site
Facilities include water for people and horses, hitching posts, year-round shade, two to five parking spaces for trailers and up to four spaces for regular parking.

C. Major Trail Head Site
Facilities include a corral, rest rooms, water for people and horses, year-round shade, five to eight trailer parking spaces and eight to twelve other parking spaces.

D. Design
All facilities shall be compatible with adjacent development.

7.3.4 Trail Design

A. Urban Trails

1. Minimum Clearances

a. Minimum right-of-way or easement for trails - 15 feet

b. Minimum width of clear trail surface - 8 feet

c. Vertical clearance from surface - 10 feet

d. Lateral clearance from edge of trail three feet above surface - 3 feet

e. Distance from back of curb to edge of trail

(1) Along expressways - 25 feet

(2) Along arterials - 15 feet

(3) Along major collectors - 9 feet

(4) Elsewhere - maximum feasible

2. Sight Distance

a. As a trail approaches within 100 feet of a street intersection, the maximum height of landscaping and wall between the trail and the curb shall be four feet.

b. Trail facilities shall not infringe upon typical sight distance.

3. Alignment

a. Except in areas of steep grades, trail alignments should not weave excessively or abruptly.

b. Grade changes should not be abrupt.

c. Where alignment changes are necessarily abrupt or tight, additional clear trail surface should be provided.

d. Maximum grade shall be 12 percent. For short distances this grade may be able to be increased with approval from the City.

e. Clear trail surfaces shall flare to 14 feet wide within 24 feet of signalized intersection crossings.

4. Drainage

a. Trails should not occur within detention or retention basins. (Exceptions must have Development Review staff approval).

b. Grading and surface treatments adjacent to the trail should not allow impounding of water or excessive erosion of soil material onto the path.

c. Where trail grades are greater than or equal to six percent, water bars shall be provided at 100-foot intervals in order to control erosion of the trail.

d. When a trail occurs in a developed drainageway, nuisance water bars shall be provided at 100-foot intervals in order to control erosion of the trail.

e. Where drainage structures or culverts block trails in drainageway, bypass routes are to be provided around the obstruction.

5. Trail Surface

a. Native soil to be used whenever possible.

b. Decomposed granite or gravel can be used, if compacted and maximum size of pebbles is 3/8 inch.

c. Where concrete surfacing is required (bridges, underpasses, crossings, etc.), only rough finished (broom) or other approved texturing will be accepted.

d. Stable earth, chopped branches and leaves or other finely ground organic materials may be used on the trail if they are worked into the top two to four inches of soil under the trail.

6. Trail Construction

a. Provide one-half-inch crown on graded slopes of less than three percent grade.

b. Provide two-to three-inch out-slope on steeper graded trails.

c. Stake the trail alignment until ALL adjacent development and construction is completed.

7. Safety Barriers

a. Application criteria - Structural safety barriers or suitably dense landscaping shall be required on the street side of trails which are:

(1) Closer to the roadway than the suggested design criteria by the City

(2) If the trail shares an underpass or overpass with a roadway

(3) Where the trail is elevated above an adjacent roadway and the side slope is steeper than 6:1.

(4) These railings are to be compatible with neighborhood development and/or topography.

b. Minimum Height:

(1) 4.5 feet, if structural

(2) 5 feet, if landscaping

c. Design - The materials and character of such barriers shall be compatible with adjacent development and landscaping. Suggested types include split-rail, and corral.

B. Rural Trails

1. Minimum clearances

a. Minimum right-of-way or easement for trails not in street or scenic corridor right of way - 15 feet.

b. Minimum width of cleared trail surface - 8 feet

c. Vertical clearance from surface - 10 feet

d. Distance from back of curb to edge of trail - maximum feasible

2. Alignment - trail should follow the contours of the natural topography whenever reasonable.

3. Drainage

a. Erosion control measures are to be provided wherever the trail grades exceed 12 percent. Logs, railroad ties, and hand-set boulders may be used.

b. Where roadways obstruct trails in washes, bypass routes are to be provided.

4. Trails surface - native soil; larger rocks to be moved to side of trail tread.

5. Trail construction - trail improvement is to be generally limited to brush clearing and branch trimming and signage.

6. If trail follows a roadway, locate trail as far as possible from roadway.

C. Underpasses/Undercrossings

1. Dimensions

a. Minimum trail width - 12 feet

b. Minimum height above trail surface at four feet from trail centerline - 8 feet

c. Minimum height above surface within three feet of trail centerline - 10 feet

2. Lighting

a. Light wells shall be provided at the median location on arterials and expressways. Such well shall be covered by a grate, flush with the top of the median curb, with a maximum gap opening of one inch. See Detail G-3690.

3. Drainage

   a. The underpass design shall not allow nuisance water to stand on the path. If water does not drain from the underpass by gravity flow, a system must be provided to pump water from the underpass.

   b. The design of the approaches shall preclude the erosion of local soil or vegetation material into the underpass.

4. Surface

   a. Trail surface shall be sand, compacted decomposed granite, or brushed concrete. Nuisance water shall not be allowed to stand on the surface.

D. Overpasses/Bridges

1. Dimensions

   a. Minimum width - 8 feet

   b. Minimum railing height:

      (1) 10 feet on structures over streets, canals or washes

      (2) 4.5 feet elsewhere

2. Alignment

   a. Helical approaches are not allowed.

   b. Extend approach railings a minimum of 12 feet from the end of the structure.

   c. Maximum grade on ramped approaches is 12%.

   d. Extend approach railing to beginning of ramp.

   e. Flare approach railing except where no room is available next to roadways.

   f. Any bank slopes at the approaches shall be protected to avoid excessive erosion.

3. Drainage
The design shall not allow nuisance water to stand on the trail.

4. Construction

a. Use a solid concrete barrier base between the trail and the roadway when the trail bridge is built as an integral part of a roadway bridge.

b. If the trail surface grade on an overpass or bridge is less than 2 %, drains shall be provided to avoid ponding on the trail surface. The drain shall be covered by a non-skid grate which is flush with the surface of the trail.

c. The overpass type of cross section on railing shall be used wherever the trail crosses over a street or canal or is built as part of a street bridge.

d. The trail surface on a structure using the overpass type of cross section shall be broom-finished concrete. Creosote treated wood is also acceptable on structures using the bridge type cross section if the maximum trail grade on the structure is less than 6%.

7.3.5 Signage

A. Locations

1. Trail crossing sign - fifty feet from street crossings

2. Trail markers - at trail intersections

3. Trail markers - At abrupt or major changes in trail direction

4. Trail markers - at intervals no less than 1000 feet, if that frequency is appropriate. Effort should be made to only use signs when required for safe trail use and to guide along the trail.

5. Trail markers - at trail access points/trail heads.

B. Siting

1. On wall side of trail when wall is on one side only.

2. Staggered on both sides elsewhere.

C. Posts and Signs

1. Post burial depth: 2.5 feet

2. Installed height 2.5 feet or 8.0 feet

3. Materials (Note: other material can be approved by the City Public Works Department)

a. Three-inch diameter metal tubing or pipe

b. Four-inch diameter treated wood posts

c. 0.080 gauge aluminum sign blanks

4. Construction

a. Lettering, markings, and border on trail markers is white, background is dark green.

b. Trail crossing signs standard highway type warning sign.

c. When signage is to be located within nine feet of back of curb, install to a height of 8 feet.

d. Typical trail markers are installed to a height of 2.5 feet.

e. Smaller signage may be used on rural trails or as approved by the City Public Works Department.

7.3.6 Trail Access Gates

A. Trail Access Gates

1. These gates are to discourage motor vehicle access to trails except as required under City Ordinance. They should be located at trail heads, where trails cross major roads, and at other points where vehicles are likely to try to access a trail. These structures should be made of heavy gauge metal, concrete, native rock, or other durable and maintenance-free materials.

7.3.7 Restricted Landscaping

A. Some plants are potentially harmful if located along trails, although no clear history of this is verified. However, in order to avoid any concerns, it is the intent of these guidelines to suggest that the following plants should be located at least eight feet from the edge of the cleared or designated trail tread. In natural areas this shall not be construed to encourage the removal of native plants. (Additional plants may be added to the list by City Staff).

1. Oleander (all varieties)
2. New Mexico Locust
3. Mountain Laurel
4. Sugar Sumac
5. Yuccas (all varieties)
6. Century Plants (all varieties)
7. Teddy Bear and Chain-Fruit Cholla
8. Prickly Pear Cacti

7.5 PARK FACILITIES

7.5.1 Introduction

A. The Park Facilities portion of the Design Standards and Policies have been established to assure that Goodyear's Park and Recreation facilities provide quality and safe experiences for its citizens. These standards and policies are not intended to provide specific design criteria, but to serve as a guide during the design phase. The design review of each park will be done on an individual basis.

7.5.2 Definitions

A. Neighborhood Park: Provides primary park services and facilities which are easily accessible and available to local residents. Not intended for large group use. Typically between ten (10) and twenty (20) acres and serving from one block up to an entire neighborhood. Neighborhood parks are preferably located adjacent to elementary schools, neighborhood center, or within a 15 minute walking distance of households in the service area.

B. Community Park: Provides a full rage of centralized recreational activities for major portions of the City with capabilities of accommodating large group reservations. Generally feature a community center building designed to meet multi-generational recreation needs. Typically between twenty and 80 acres, serving several neighborhoods or approximately 10,000 to 25,000 people. Community parks are preferably located in the center of several neighborhood, adjacent to a middle school or high school where possible.

C. Specialty and Regional Park: Provides specialized facilities and preserves significant unique features of the community, including environmentally sensitive areas. The size of these parks will vary as well as the specific number of people served by these parks; however, the parks should be oriented to serve the entire community and beyond. Location of park will vary depending on the dynamics of the park (e.g. park theme or mountain park.).

7.5.3 Park Master Plan Development Process

A. A Master Plan is developed for each park to help guide the planning of facilities in each park.

1. Master Plan Approval Process Steps

a. Planning Consultant/Parks and Recreation Team

(1) Prepare alternative development concepts

(2) Conduct public input meetings with neighborhood and community

(3) Develop Preliminary Master Development Plan for presentation

b. Public Works Department
Conduct Public Hearing to review and recommend on Preliminary Park Master Plan

c. Planning Consultant/Parks and Recreation Team
Prepares Final Park Master Plan from Development Policy Committee review

d. Public Works Department

(1) Reviews and recommends to Development Policy Committee and the City Council for approval of the Final Park Master Plan

e. Planning Commission
Reviews and recommends to City Council for approval of the recommended Final Park Master Plan

f. City Council
Review and approval of Final Park Master Plan

g. Approved Park Master Plan
End of formal public review and involvement

7.5.4 Park Design

A. Development Review
Park design must be approved by the Development Policy Committee before any development occurs on the park site.

B. Park Development

1. Park land ratio shall consist of open space (25%), passive space (25%) and facility space (50%).

2. Whenever possible, parks shall be located adjacent to school sites to create a fluid joint use between the park and school facilities.

3. Sidewalks

a. Designated multi-use paths shall be a minimum of ten (10) feet in width. See Sections 4.4 and 7.3 of this manual for bike paths and multi-use paths.

b. Sidewalks utilized specifically for pedestrians shall be a minimum of eight (8) feet in width.

c. All multi-use paths shall be located a safe distance away from active courts or fields.

4. Playgrounds

a. Playgrounds shall contain some type of shading, either from ramadas (16 ft x 16 ft minimum) and/or non-deciduous trees (30 inch boxes minimum).

b. Sand shall consist of a doubled washed premium bunker sand, at a minimum depth of twelve (12) inches.

c. Playground shall meet or exceed all current U.S. Consumer Products Safety Commission (CPSC), American Disability Act (A.D.A.) and ASTM standards.

5. Softball/Baseball Fields

   a. All fields shall be lighted to meet all current Illuminating Engineering Society (I.E.S.) standards and utilize effective shielding systems to reduce spill light off play areas.

   b. Infields shall be constructed with an approved non-toxic organic binder, red color mix material especially prepared for ballfields. Material shall be a minimum of four (4) inches in compacted depth. Bind by crushed aggregate screenings down to 1/4" or 3/8" fine particles.

   c. Homeplate and mounds shall be filled with a minimum of two (2) inches of fine gray brick clay incorporated at a uniform rate with established infield red mix. Infields and outfield turf areas shall consist of a Tif Hybrid Bermuda Grass.

6. Court Facilities

   a. All courts facilities shall be lighted to meet all current Illuminating Engineering Society (I.E.S.) Standards.

   b. Sand Volleyball courts shall consist of Double Washed Mortar Premium Grade at a depth of twelve (12) inches.

7. Irrigation

   a. Systems shall be capable of interfacing with the Calsense computerized central system.

   b. Irrigation guidelines, except as noted below, shall comply with Section 7.1.4, Median Landscaping, of this Manual.

      (1) Irrigation pipe 2" in diameter or larger shall be Class 200

      (2) All gate valves shall comply with valve standard set by City.

(3) All irrigation boxes shall be set at grade and supported by blocks to prevent crushing by traffic.

8. Landscaping

a. Plant material shall consist of low water use, drought tolerant species. Plant material shall be approved by the Public Works Department prior to installation.

9. Construction Material

a. Park fixtures and ramadas shall consist of steel, metal, aluminum or recycled material or approved equal; wood will not be permitted.

b. Headers consisting of concrete, brick, ultraviolet treated vinyl shall be installed between turf and landscaped areas.

c. All drinking fountains installed in parks will be chilled and meet all A.D.A. standards.

10. Signage

a. The standard park sign will be located at the main entrance of every neighborhood and community park. The mold shall be pre-cast with the park name engraved into the mold. The park sign mold can be obtained from the City of Goodyear Public Works Department.

b. Specialty parks may deviate from standard park signage with the approval from the Public Works Department. A marquee meeting the City's sign Ordinance may be acceptable upon the approval of Public Works Department and obtaining a City sign permit.

c. All signage must meet the City of Goodyear's Sign Ordinance. Ordinance information can be obtained at the Community Development Department at 932-3494.

11. Parking

a. All parking shall meet the City of Goodyear's parking requirements stipulated in the Parks Master Plan and City zoning requirements.

b. Parking lots lights shall meet all current Illuminating Engineering Society (I.E.S.) standards and City Zoning requirements.

c. Non-deciduous trees (24 inch boxes minimum) shall be planted adjacent to parking lots to provide shading. An acceptable ratio is one tree per every five parking stalls.

7.6 LANDSCAPING FOR FLOOD RETENTION BASINS

7.6.1 Sprinkler Systems for Flood Retention Basins

A. All sprinkler systems installed in the City shall conform to the following specifications:

1. A flood irrigation system may be used for flat level areas, if available. A sprinkler irrigation system must be used for all areas not covered by flood irrigation which will be developed as turf.

2. The City will review and approve all irrigation systems prior to any installation. All sprinkler systems shall be automatic, and shall utilize a pressure type vacuum breaker or reduced pressure vacuum breaker (as required) before the remote control valves. All applicable codes shall be adhered to and a permit will be required. All plans submitted for approval must specify the brand, model, and nozzle size(s) of the head; the brand, model, and size of all electric valves; the brand and model number of the electric controller; and all pertinent data on such miscellaneous items as valves boxes and covers, size and type of pipe, all necessary details and friction pressure loss calculations for the longest run in the system for both full-circle and part-circle circuits.

a. Excavation, Backfilling, and Compaction
Trenches for sprinkler lines and control wiring shall be excavated to a minimum depth of 18 inches for mains under constant pressure and 12 inches for laterals not under constant pressure. When in common trenches, all control wires shall be placed first, followed by a layer of fine backfill; then the main line followed by a minimum of 6 inch fine backfill; then the laterals, and final backfill and compaction, all in accordance with Section 601 of the Maricopa Association of Governments' Specifications.

b. Existing Utilities and Structures
The developer shall protect existing structures and utility services and be responsible for their replacement. Minor adjustments to the system will be permitted to clear existing obstructions subject to the approval of the City.

c. Materials
Once the plans have been approved by the City, no substitutions shall be allowed, except when unavailable from the supplier, and another approved product is locally available. All such substitutions must be approved in writing by the City. All materials shall be new and the best of their class and kind. All materials and workmanship shall be guaranteed for a period of one (1) year against defective material and workmanship.

3. Inspections

a. The City shall be required to inspect and approve the work at the following stages of completion. Any work completed without these inspections must be removed prior to acceptance of that phase of the work. These stages are:

(1) Completion of all trenching and installation of all control wires prior to backfilling.

(2) Installation of all main line piping prior to backfilling, including the vacuum breaker, quick coupler circuits, and any shut-off valves. The main line shall be pressure tested for 30 minutes at this inspection.

(3) Installation of all lateral valves, lines and heads.

b. Flushing and Testing
After all new sprinkler piping and risers are in place and connected and all necessary division work has been completed and prior to the installation of sprinkler heads, control valves shall be opened and a full head of water used to flush out the system. After the system is thoroughly flushed, risers shall be capped off and the system pressure tested prior to backfilling the laterals.

c. As-Built Drawings
The developer shall be responsible for providing photo mylar (4 mil) drawing system with all changes in location marked on the drawing. This shall be submitted to the City prior to final acceptance. (See As-Built Requirement Section 10.1 for specifics.)

d. Control Cable
All wiring to be used for connection of the automatic controller to the electric solenoid actuated remote control valves shall be Type UF-600V, 7 strand or solid copper, PVC insulation, single conductor, UL approved underground feeder cable. All pilot or "hot" wires are to be one color and all "common" wires are to be of another color. Wiring shall conform to local codes and shall be installed according to the manufacturer's recommendation. Minimum wire size shall be No. 14.

4. Pipe

a. No galvanized pipe shall be used. Schedule 80 PVC nipples shall be used for sprinkler swing joints, and Type K hard copper shall be used for all main line piping above grade, and extending 18 inches below finished grade.

b. Plastic PVC lines below paving shall be installed within separate Schedule 80 sleeves (sized, as required). Piping shall be installed by jacking, boring, or hydraulic driving.

c. All pipe (PVC or copper) installed in rocky or caliche soils shall be thoroughly embedded and completely covered in sand or approved imported topsoil.

d. Plastic Pipe

(1) Plastic pipe shall be as described on the drawings. It shall be unplasticized PVC extruded from virgin parent of the type specified on the plans. The pipe shall be homogeneous throughout and free from

cracks, holes, foreign materials, blisters, deleterious wrinkles, and dents.

(2) All pipe shall be continuously and permanently marked with the following information: Manufacturer's name, size, schedule, and type of pipe, working pressure at 73 degrees Fahrenheit, and N.I.S.F. approval.

e. Plastic Pipe, Fittings and Connections on Mains
All pipe and fittings shall be approved Type 1, Grade 1, PVC, Schedule 80 pipe, conforming to A.S.T.M. D1784-65T and D2241-L65T, and shall be either solvent weld pipe or rubber ring joint pipe. When a connection is plastic to metal either a PVC Schedule 80 nipple, brass nipple, or male adapters shall be used. The male adapter shall be hand tightened, plus one turn with a strap wrench. Joint compound shall be Permatex Type II.

5. Plastic Pipe, Fittings and Connections On Laterals

a. All pipe shall be as follows:

½ inch - PR 315, PVC
¾ inch and 1 inch - PR 200, SDR 32, PVC
1-1/4 inch and up - PR 160, SDR 26, PVC

b. All fittings shall be molded fittings manufactured of the same materials as the pipe and shall be suitable for either solvent weld or screwed connections. Use male adapters as described above. Only Schedule 80 PVC pipe may be threaded.

6. Installation of Plastic Pipe
Plastic pipe shall be installed in a manner so as to provide for expansion and contraction as recommended by the manufacturer. Plastic pipe shall be cut with a hand saw or hack saw with the assistance of a squared-in sawing vise, or in a manner so as to insure a square cut. Burrs at cut ends shall be removed prior to installation so that a smooth, unobstructed flow will be obtained. Pipe for use with rubber gaskets will be tapered as recommended by the manufacturer.

7. Remote Control Valves and Valve Boxes

a. Remote control valves shall be electric and have brass or bronze bodies and flow controls, and shall be either Griswold SF Series, Rainbird EFA Series, Royal coach 20000 Series, or Johns-Mansville 930G Series, and shall be installed per manufacturer's recommendations.

b. Remote control valve boxes shall be either Ametek 10-170-001 box and cover, or approved equal. All electric remote control valves shall be of the same manufacturer as the automatic electric controller and should be of the globe type.

c. All lids shall have snap-type locking devices.

8. Pressure Type Vacuum Breaker Assembly

a. Shall be either S.M.R. P-720 in 1-1/4 inch or 2-inch sizes, or Febco Model 765 in sizes from 1/2 inch to 2 inches. Pressure Vacuum Breaker Assemblers shall consist of an approved check valve, vacuum relief, inlet and discharge shutoffs and field testing cocks. All nipples and other fittings shall be red brass. Vacuum breakers shall be rated at 150 psi working pressure and shall withstand water temperatures to 160 degrees Fahrenheit.

b. The assembly shall be mounted 12 inches above the highest head in the system it is protecting, and adjacent to a fence or structure when available. Vacuum breakers must comply with local and state codes and the foundation for Cross-Connection Control Research, University of Southern California.

9. Sprinkler Heads

a. Sprinkler heads shall be Impact Drive, Rotary Pop-up or Gear Drive Sprinklers, both part circle and full circle types. They shall be constructed of the following materials:

(1) Bodies shall be cast bronze, cast aluminum with vinyl coating, or cast iron with vinyl coating.

(2) All internal workings must be constructed of cast bronze, machined brass, or stainless steel, except for seals, wipers and strainers.

(3) All lids shall be rubber covered.

(4) Note: All acceptable sprinkler heads have not been listed; other makes and models must be submitted to the City for approval.

b. The following manufactures and models are acceptable:

(1) Royal Coach Models 10060, 10061, 10070, 10071, 10080, 10090, 10091, 10092,10100, and 10110.

(2) Rainbird Models 27, 37, 47, 21, 31, 41, 41K and 51.

(3) Johns-Mansville/Buckner Models 8250, 8255, 8260, 8265, 8280, 8281, 8282, 82831, 8283Hi, 8283B, and 8283HB.

(4) Toro 640.

c. All heads of a particular type of function in the system shall be of the same manufacturer and shall be marked with the manufacturer's name and identification in such a position that they can be identified without being removed from the system. All sprinkler heads shall be set perpendicular to finished grades unless otherwise designated on the plans. Sprinkler heads adjacent to existing walks, curbs, or other paved areas, shall be set to grade. All nozzles on rotary pop-up sprinklers shall be tightened after installation. All sprinklers shall be tightened after installation. All sprinklers having an adjustment stem shall be adjusted on a lateral line for the proper radius, diameter and/or gallonage.

(1) Swing Joints
All sprinklers and quick coupler valves shall be installed on swing joints consisting of two (2) lengths of PVC Schedule 80 nipples (6 inches long) attached with two (2) PVC

street ells (mipt by fipt) and one PVC ell (fipt by fipt) so that the sprinkler can rise or fall without breaking the pipe.

10. Electric Controller

a. The sprinkler controller shall be capable of operating on 115 volts, 60 cycle A.C. current, and shall provide output current of 25-26.5 volts a 1.1 amps for electric solenoid valves, an 115 volts for a pump start circuit (if required). Controller shall be pedestal mount or wall mount with factory supplied hardware for either. Controller shall be sized to perform the sprinkling efficiently and adequately, and the electric solenoid valves must be of the same manufacturer as the Controller.

(1) The following manufactures and models are acceptable:

- Rainbird RC - 12A, RC - 18A and RC - 23A.
- Griswold SR - 12, SR - 18 and SR - 24.
- Johns-Mansville/Buckner: KCS - 12T, KCS - 24T.
- Royal Coach: 34020, 35010, and 35011.
  If less than 12 stations are needed, a Rainbird RC - 8 or RC - LS controller will be required. No other controller will be allowed.

11. Gate Valves

a. Gate valves shall be bronze, in sizes of 1/2 inch through 2-1/2 inches, and cast iron, in sizes of 3 inches through 12 inches.

b. The body of bronze valves shall be of heavy duty bronze conforming to the requirements of A.S.T.M. B62 (85-5-5-5), or approved equal. Valves shall have a service rating for non-shock, cold water, or 200 pounds per square inch. Valves shall be of the

double disc, taper seat type with non-rising stem, union bonnet and handwheel. Identification of valves by trade name, manufacturer, etc. shall be stamped or cast on the valve. Valves shall be assembled as detailed on the plans or as specified in the special provisions.

c. The body of the heavy, bronze valves shall conform to AWWA Standard C-800-89 or approved equal. Valves shall be a spherical, flourocarbon brass ball. Valves shall have a service rating for non-shock, cold water of 300 pounds per square inch.

12. Check Valves

a. Check valves 2 inch and smaller shall be swing type, bronze bodied with threaded connections and replaceable composition disc, rated at 150 pounds S.W.P.

b. Check valves 2-1/2 inch and larger shall be swing type iron body, bronze mounted with flanged or threaded connections and replaceable rubber disc, rated at 126 pounds S.W.P.

13. Booster Pumps
If the pressure is not sufficient to operate the sprinklers efficiently, the City may require a booster pump. This pump must be enclosed within a 6-foot high slump block wall along with the controller, vacuum breaker and all electric controls. Access is to be by a 6-foot chain link gate with lock. The City will assist in the selection of an acceptable booster pump. If a booster pump is used, a reduced-pressure backflow, prevention assembly will be required in lieu of a pressure type vacuum breaker.

14. Pipe Routing shall be as follows:

a. Meter to vacuum breaker - Schedule 80 PVC or Type K soft copper.

b. Vacuum breaker risers - Type K hard copper.

c. Exposed pipe to booster pump (if required), Type K hard copper.

d. All other exposed main line pipe - type K hard copper.

e. All buried mains and laterals downstream of vacuum breaker (or booster pump) - PVC pipe as outlined under No. 10,11 and 12.

15. Water for Trees

a. All trees shall receive water from one of the following systems:

(1) An emitter system with electric solenoid valves, Y-strainer and pressure regulating valve, or

(2) A bubbler system with electric solenoid valves, surface bubblers and PVC pipe, or

(3) An underground soaker pipe system with electric solenoid valves.

7.6.2 Landscaping Specifications for Flood Retention Basins

A. Native Desert shall be permitted where retention is directly adjacent to preserve lands. Native Desert landscaping shall be reviewed on a case by case basis.

B. Gravel is an acceptable landscaping for flood retention basins. Gravel landscaping shall be reviewed on a case by case basis.

C. Lawn Construction

1. Materials

(1) Seed
The kind of seed planted shall be appropriate for the planting season, and shall be one of the following:

- Winter Lawn Seed
Shall be annual Rye grass (Lotium Multiflorum) planted from September 15 to April 15; shall have a minimum percentage of purity and germination of 95% and 88% respectively. At the developer's option, he may wait until April 15, or

plant Rye. If Rye is planted, the developer must provide the City Bermuda grass seed to be used for reseeding the following summer. The Bermuda seed shall comply with requirements noted in this Section. The amount of seed shall be based on the application rate specified in Sub-section 6)b). The seed shall be delivered to the City prior to acceptance of the basin.

- Summer Lawn Seed
  Shall be common Bermuda (Dynondon Dactylon) planted from April 15 to September 1; shall be fancy hulled seed having minimum percentage of purity and germination of 94% and 88% respectively and a weed seed content not exceeding 0.35%.

(2) Mulch
Shall be one of the following decomposed stabilized and fortified, treated (nitrolized) wood products with no more than 1% nitrogen after treatment: Fir mulch, Pine mulch, or Redwood mulch.

2. Soil Test in Lieu of Removing and Replacing Topsoil
If the developer has a specific reason for not removing and storing the topsoil, he may request to perform grading without replacing topsoil. If the City concurs, upon final grading of the site, soil samples will be taken by the developer for analysis and recommendations will be made for improving the soil; if necessary, by an independent soils lab. Any recommendations must be implemented by the developer and inspected by the City prior to proceeding with lawn construction.

3. Moisture Content
The soils shall not be worked when the moisture content is so great that excess compaction will occur; nor when it is so dry that a dust will form in the air or that clods will not break readily. Water shall be applied if necessary to

provide ideal moisture content for tilling and for planting herein specified.

4. Where soil tests show that existing topsoil is satisfactory, a seedbed shall be prepared by scarifying to a depth of at least 3 inches and dragging to a smooth surface. Where existing soil is caliche type, it shall be excavated to a depth of 6 inches, removed from the site, and replaced with acceptable topsoil. Irregularities in the surface shall be leveled before seeding operations commence.

5. After raking, roll entire area in two directions at approximate right angles with a water ballast roller weighing 100 to 300 pounds. Any irregularities that develop shall be re-raked, scarified for bond, and again rolled until the area is true and uniform and free from lumps or depressions. Water shall be applied to surface whenever necessary to insure proper working of soil. No heavy objects except lawn rollers shall be taken over these areas. Grade and compaction must be approved by the City prior to planting.

6. Planting

    a. Just prior to broadcasting the seed, apply and lightly rake into the surface the following:

        (1) 5 pounds Ammonium Sulfate (21-0-0) per 1,000 square feet.

        (2) 15 pounds Superphosphate (0-20-0) per 1,000 square feet.

    b. After the City has approved the areas to be seeded, the seed will be broadcast at the rate of 3-1/2 pounds Bermuda or 10 pounds of Rye seed per 1,000 square feet. One half of the seed will be sown with the sower moving in one direction and the other half shall be sown with the sower moving at right angles to the first sowing. Broadcasting shall not be done in windy weather.

7. Mulching

    a. Top dress all seeded areas with an approved wood mulch as specified. Spread mulch evenly over all areas at a rate of one cubic yard per 1,000 square

feet, or as recommended by the manufacturer, which ever is greater.

b. Lightly roll all areas and thoroughly water with a fine spray. Turf shall then be kept continually moist by watering as often as required.

c. Any areas that do not root properly shall be replanted at 10-day intervals until and acceptable stand of grass is obtained.

D. Maintenance Period

1. The developer shall maintain all planted areas for a period of 2 years, beginning immediately after preliminary City acceptance.

2. If all plantings are not acceptable at the end of the maintenance period, the maintenance shall be continued until the work meets City approval.

3. During the maintenance period, applications of complete fertilizer (6:10:4) shall be made (at 30 days, 60 days and annually there after pursuant to Public Works schedule) at the rate of 20 pounds per 1,000 square feet with each application.

4. Maintenance shall include continuous operations of watering, weeding, mowing, rolling, trimming, edging, cultivation, fertilizing, spraying, insect and pest control, re-seeding, replacement, and/or any other operations necessary to assure good normal growth. The developer shall be responsible for applying lawn moth control sprays or other materials, as often as may be required, to protect turfs during the entire maintenance period.

5. When the turf has established sufficient root structure and an approximate height of 3 inches, mowing should begin immediately to a 2 inch height and shall be mowed thereafter and reduced in safe increments to a height of 1 inch.

6. During the installation period and during the maintenance period, the developer shall be responsible for maintaining adequate protection for all areas. Any damaged planting shall be repaired at the developer's expense.

7. At termination of each maintenance period all turf shall be live, healthy, undamaged and free of infestations. All areas shall be completely void of barren spots larger than 3 inches by 3 inches. Inferior plantings shall be replaced and brought to a satisfactory condition before final acceptance of work will be made. The developer shall immediately replace any and all turf that dies or is damaged.

8. Two (2) inspections shall be made that affect each maintenance period: The first shall be after all plantings have been completely the maintenance period of not less than 60 calendar days, and the second shall be at the end of the 60 day maintenance period. If there are differences due to improper or insufficient maintenance, then maintenance shall be continued by the developer until all work meets with the specifications and can be approved by the City.

7.6.3 Planting of Trees, Shrubs and Groundcover

A. General

All retention basins shall receive a minimum average of ten (10) trees per acre, based on the net acreage, with a minimum of three (3) varieties and a maximum of seven (7) varieties. These trees preferably will be evergreen and fast growing varieties.

B. Quality and Size

1. All trees shall be a minimum size of 15 gallons; shall have sufficient roots to hold the earth together after removal from the containers, but shall not be root-bound. Plants shall have been grown in pots, cans or boxes for a minimum of three (3) months, and a maximum of one year.

2. All plants shall exhibit normal growth and shall be sound, healthy, vigorous, and free from disease, insect infestations, or weeds.

3. Trees shall have a straight trunk throughout their height, and shall be in accordance with the American Standard for Nursery Stock.

C. Nomenclature

For inspection and identification, durable legible labels, stating in weather-resistant ink the correct plant name and size, as specified in the plant list, shall be securely attached to all tree trunks delivered to the site.

D. Material for Planting

1. Manure for mulch
Shall be well-rotted, unleached stable or cattle manure, reasonably free from shavings, sawdust, or refuse and shall contain not more than 10% straw by volume.

2. Humus for prepared soil
Shall be sterile peat or peat-moss, or decomposed stabilized and fortified, treated (nitrolized) wood mulch, with no more than 1% nitrogen after treatment, and shall be fir mulch, pine mulch, or redwood mulch type.

3. Mulch in planting basins
Shall consist of 25 pounds of soil sulphur thoroughly mixed with one cubic yard of manure. Mulch shall be evenly spread throughout the tree basin to a depth of 2 inches.

4. Prepared soil for backfilling tree pits
Shall be composed of three (3) parts of topsoil, two (2) parts of washed clean sand, and one (1) part humus by volume, and thoroughly mixed in insure uniformity. Topsoil shall be natural, fertile, friable soil which shall not be excessively acid or alkaline, nor contain toxic substance harmful to plant growth, and be reasonably free of noxious weeds, clay lumps, clods, stones, roots, stumps, and debris of any kind.

5. Staking materials

a. Stakes for supporting trees shall be 2 inches by 2 inches by 8 feet long and shall be straight, sound, stout, and free of knots which weaken the stake. Each tree shall receive two (2) stakes adjacent to the rootball.

b. Wire for fastening trunks to stakes shall be No. 12 gauge, annealed galvanized steel (not iron). One wire shall be placed at the top of the stakes, and another half-way down the stakes. If necessary, staple or tack wire to stakes to hold firm.

c. Hose to protect trunk from wire shall be new 2-ply reinforced rubber or plastic garden hose.

E. Plant Material

1. Unless otherwise indicated, all plant materials furnished shall be nursery-grown, well-branched, and will-proportioned. All plants are subject to inspection and approval before planting, whereupon all plants found unsuitable shall be removed and replaced.

2. Plants of kinds other than those indicated on the plant list will be considered by the City only upon submission of proof that any plant is not reasonably procurable in the local region and upon prior authorization by essential characteristics as the kind of plant specified in regards to appearance, ultimate height, shape, habit growth, general soil, and other requirements. In no case shall the average cost value of the substituted plants be less than the cost and value of plants indicated.

3. Upon delivery to the site, all nursery stock shall be planted as soon as possible. Until planting, stock plants shall not be exposed to excessive sun or drying winds during planting operations.

F. Setting Plants

Unless otherwise specified, all plants shall be planted in pits and shall be set so that the finish grade level after settlement will be the same as that at which plants were grown. They shall be planted upright and faced to give the best appearance and relationship to adjacent plants or structures. All trees shall be set plumb and rigidly braced in position until the soil has been tamped solidly around the ball. Plants shall be backfilled with planting soil which shall be thoroughly settled by watering and tamping to fill all voids. A water basin shall be created at the base of each tree, and shall be a minimum of 4 feet in diameter. Side slopes shall be no greater than 3:1.

G. Cleanup

Any soil, manure, or other material dropped onto paved areas by hauling operations or otherwise, shall be removed promptly, keeping these areas clean at all times. Upon completion of planting, all excess soil, stones, and debris not heretofore disposed of under this scope of work, shall be removed from the site or disposed of as directed by the developer.

H. Maintenance Period

1. The developer shall maintain all trees for a period of 2 years beginning with the preliminary acceptance by the City. If all trees are not healthy at the end of the maintenance period, the maintenance shall be continued until the trees meet the approval of the City, or are replaced.

2. The contractor shall guarantee all plant material to be in a vigorous, healthy condition for a period of 2 years from the date of acceptance or replacement and shall guarantee to replace any plant material which proves to be not true to name, regardless of the length of time it takes to make this determination.

I. Approved Tree List for Flood Retention Basins
Note: All acceptable trees have not been listed; other varieties must be reviewed by the City for approval.

The following trees may be planted in retention basins:

	TREES FOR LOWER/LOWER HALF OF BASIN		REFERENCE RATING
	Acacia farnesiana	- Sweet Acacia	B
*	Acacia Salicina	- Willow Acacia	A
*	Acacia stenophylla	- Shoestring Acacia	A/C
	Brachychiton populneus	- Poplar-Leaved Kurrajong	A
	Casuarina equistifolia	- Horsetail Tree	B
	Casuarina stricta	- Beefwood	B
	Cercidium floridum	- Blue Palo Verde	A
	Eucalyptus viminalis	- Manna Gum	A
	Eucalyptus rudis	- Desert Gum	A
	Eucalyptus camaldulensis (rostrata)	- River Red Gum	A
	Eucalyptus sideroxylon	- Red Ironbark	B
	Geijera parviflora	- Australian Willow	B
	Gleditsla triacanthos inermis	- Thornless Honey Locust	
		"Moraine"	B
		"Imperial"	A
		"Shademaster"	A
	Lysiloma Microphylla (var. Thornberi)	- Feather Bush	A/C
	Pinus canariensis	- Canary Island Pine	A
	Pinus brutia eldarica	- Eldarica Pine	A
	Pinus halepensis	- Aleppo Pine	A
	Pithecellobium flexicaulli	- Texas Ebony	B
	Rhus lancea	- African Sumac	A

TREES FOR LOWER AREA/LOWER HALF OF BASIN		REFERENCE RATING
Casuarina equistifolia	- Horsetail Tree	B
Casuarina stricta	- Beefwood	B
Eucalyptus viminalis	- Manna Gum	A
Eucallyptus camaldulensis	- River Red Gum	A
Salix babylonica	- Weeping Willow	B
Populus Fremonti	- Freemont Cottonwood	A
Flaxinus Velutina	- Arizona Ash	A
Flaxinus Velutina "Modesto"	- Modesto Ash	A

* Indicates trees which require three (3) support stakes.

A indicates trees that are excellent for specimen use.

B indicated trees that are good for specimen use.

A/C indicates trees good for specimen use, but not preferred in large quantities.

Note: All trees with spreading habit, seed pods or thorns to be planted a minimum of 15 feet from walls, walks, and pavements.